



# **2005 Nevada Hospital In-patient and Emergency Room Use For Cavities, Gum Disease and Dental Abscesses**

## **Department of Health and Human Services Nevada State Health Division Bureau of Family Health Services**

Jim Gibbons  
Governor

Alex Haartz, MPH, Administrator  
Nevada State Health Division

Michael J. Willden, Director  
Department of Health and  
Human Services

Bradford Lee, M.D.  
Nevada State Health Officer

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## Overview

The Nevada State Health Division's, Oral Health Program partnered with the Nevada Hospital Association to request data from Nevada hospitals to determine if hospitals are being utilized for basic dental services that are more appropriately treated in the primary care setting of a dental office or clinic. The Oral Health Program was interested in the extent of use, and the associated costs. Hospitals were asked to provide data on the number of cases and associated charges for patients who were treated on an in-patient basis or in their emergency rooms during calendar year 2005. These were patients for whom the primary diagnosis code was one associated with dental caries (cavities), gum disease or an abscessed tooth (see Appendix A for a complete list of the ICD-9 Diagnosis Codes). Conditions such as cleft palate, oral cancer and disorders of the temporomandibular (jaw) joint were specifically excluded as these are conditions for which a hospital setting may be considered to be most appropriate. Out-patient data was also excluded from the request because very young children, medically compromised individuals and individuals with special needs are frequently (and appropriately) treated in an out-patient hospital setting due to the fact that they need to be under general anesthesia in order to undergo dental treatment.

## Findings

Hospitals responding to the request reported treating a total of 5,127 patients *for whom the primary diagnosis code was dental caries, gum disease or an abscessed tooth*, as in-patients or in their emergency rooms. The associated charges for these patients amounted to \$3,469,730. After analyzing the data from the hospitals that did respond, the program estimated the total number of patients seen in 2005 *for whom the primary diagnosis code was dental caries, gum disease or an abscessed tooth*, by **all** Nevada hospitals was **6,431** and the associated cost with providing that basic dental service was estimated to be **\$3,963,519**.

## Analysis

The total number of hospital beds in Nevada during calendar year 2005 was 4,845. The hospitals that responded to the data request accounted for a total of 91 percent of all hospital beds. However, the non-responding hospitals still represented a sizable portion of the hospitals (12 of the 32 total hospitals). Further analysis indicated that the non-responding hospitals tended to be smaller as measured by number of beds. Those that responded averaged 221 beds per hospital while those that did not respond averaged 36 beds per hospital.

To estimate the patient count and dollar impact of those twelve hospitals that did not respond to the request for information, we analyzed those that did respond. Each of the responding hospitals was placed in one of three categories and the ratio of patients who

received basic dental services to the number of hospital beds was determined. Also the average cost per patient was calculated. The results are summarized in Table I.

Table I  
Patient Count and Dollars Billed for Basic Dental Services  
Responding Hospitals by Size-Category

Number of Beds	Number of Hospitals	Total Beds per Category	Total Patients per Category	Ratio of Patients to Beds	Total \$\$ per Category	Average Cost Per Patient
1 - 100	7	248	1230	5.0	\$379,254	\$308
101 - 300	8	1593	1114	0.7	\$1,082,021	\$971
301 - 992	5	2573	2783	1.1	\$2,008,455	\$721
Total	20	4414	5127	1.2	\$3,469,730	\$677

The “Ratio of Patients to Beds” and the “Average Cost per Patient” estimated from the responding hospitals were applied to like size non-responding hospitals to estimate the number of patients they saw for basic dental services and the associated cost. The details of the estimates are summarized in Table II.

Table II  
Estimates of Dollars Billed for Basic Dental Services at non-Responding Hospitals

Hospital Name	Number Beds 2005	Estimated Case Ratio	Total Cases	Estimated Dollar per Case	Total Dollars
Carson-Tahoe Specialty Medical Center 01/19/2006	N/A	N/A			
Battle Mountain General Hospital	7	5.0	35	\$308	\$10,780
Carson Valley Medical Center 01/30/2004	15	5.0	75	\$308	\$23,100
Incline Village Health Center	4	5.0	20	\$308	\$6,160
Nye Regional Medical Center	10	5.0	50	\$308	\$15,400
Pershing General Hospital	7	5.0	35	\$308	\$10,780
Sierra Surgery & Imaging LLC 03/10/2005	15	5.0	75	\$308	\$23,100
Boulder City Hospital, Inc.	47	5.0	235	\$308	\$72,380
Grover C. Dils Medical Center	4	5.0	20	\$308	\$6,160
Mesa View Regional Hospital 07/09/2004	25	5.0	125	\$308	\$38,500
Progressive Hospital	24	5.0	120	\$308	\$36,960
Northeastern Nevada Regional Hospital	75	5.0	375	\$308	\$115,500
North Vista Hospital, Inc.	198	0.7	139	\$971	\$134,969
<b>Total non-Participating Hospitals (estimate)</b>	431		<b>1,304</b>		<b>\$493,789</b>
<b>Total Participating Hospitals (actual)</b>	4,414		5,127		\$3,469,730
<b>TOTAL</b>	4,845		<b>6,431</b>		<b>\$3,963,519</b>

NOTE: Number of beds for non-participating hospitals are actual counts

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In addition to helping to estimate the number of patients and the associated cost for the non-responding hospitals Table II provides one interesting observation. The smaller hospitals (less than or equal to 100 beds) appear to have a different patient usage and cost profile than the larger hospitals. The ratio of patients who use the hospital for basic dental services per bed is 5.0 which is almost five times larger than the other two groups of hospitals, perhaps indicating a lack of access to basic dental services in the area of the smaller hospitals. Inversely their cost per patient is 57 percent to 68 percent less than the larger hospitals perhaps reflecting the differing cost structures of small hospitals verses the larger hospitals.

#### Appendix A

##### **Primary Diagnosis ICD-9 Codes Used to Identify Basic Dental Services**

<b>ICD-9 Diagnosis</b>	<b>Description</b>	<b>No of Cases</b>	<b>Total Charges (\$)</b>
521.00	Unspecified Dental Caries		
521.09	Other Dental Caries		
521.9	Unspecified Disease Hard Tissues Teeth		
522.4	Acute Apical Periodontitis Pulpal Origin		
522.5	Periapical Abscess Without Sinus		
522.7	Periapical Abscess With Sinus		
523.0	Acute Gingivitis		
523.1	Chronic Gingivitis		
523.3	Acute Periodontitis		
523.4	Chronic Periodontitis		
523.8	Other Spec Periodontal Diseases		
Other:			
520.7	Teething Syndrome		
521.3	Erosion NOS		
522.00	Other		
525.9	Dental Disorder NOS		
873.62	Open Wound of Gum		
873.63	Broken Tooth		

Note: Those ICD-Diagnosis codes listed under “Other” are those codes that responding hospitals voluntarily provided.